

ABSTRACT OF THE DISCLOSURE

5 A profile-based system is described for verifying the functionality of a device design. In one embodiment, the system includes a profile generation module, a coverage measurement module, and a pattern generation module. The profile generation module operates from a rule set that represents the design specification and any applicable standards, and a profile mode that specifies "interesting" aspects of test patterns for device design verification. The interesting aspects are determined by the user and may be somewhat subjective, although it is preferable that the aspects relate to the coverage provided by the test pattern. Given the rule set and the profile mode, the profile generation module determines an ordered set of variable values that at least partially specify a test pattern, and produces a profile that intelligibly describes the interesting aspects of the test pattern. Tools such as the coverage measurement module and the pattern generation module may then operate on the profile of the test pattern. The coverage measurement module analyzes the profile to determine coverage, and the analysis results may be operated on by the profile generation module to determine a profile for an improved test pattern. The coverage measurement module may preferably employ a design-vector grading (DVG) metric or a variation thereof. The pattern generation module converts the profile into a test pattern having the interesting aspects specified in the profile. The system may further include a pattern profiling module for converting existing test patterns into profiles, and a pattern checking module for verifying that profile-represented patterns satisfy particular rules. This system efficiently produces test patterns that are better understood by the user and that enable better coverage to be achieved.

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